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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FERENCE & ASSOCIATES  
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EXAMINER

ROJAS, OMAR R

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 03/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/670,250

Applicant(s)

COHEN ET AL.

Examiner

Omar Rojas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 20-31 is/are rejected.
- 7) ☒ Claim(s) 16-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> . | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Information Disclosure Statement***

1. The prior art documents submitted by applicant in the Information Disclosure Statement(s) filed on December 10, 2001 have all been considered and made of record (note the attached copy of form(s) PTO-1449).

***Drawings***

2. The corrected or substitute drawings were received on August 13, 2001. These drawings are acceptable.

***Specification***

3. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

4. **Claims 26-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

5. Claim 26 recites the limitation "said at least one glass sheet" on lines 2-3 of page 23. There is insufficient antecedent basis for this limitation in the claim.

6. Claims 27-28 are rejected as being dependent on rejected claim 26 and thus incorporating the same insufficient antecedent basis.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**8. Claims 1-10, 12-15, 22, and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent no. 5,835,659 to Ota et al. (hereinafter Ota), provided by applicant.**

Regarding claims 1-5 and 7-10, Ota discloses an apparatus comprising an input and output interface (see figs. 10a-10c); and at least one bent optical fiber (59c) being disposed between the input and output interfaces, said optical fiber adapted to avoid mechanical failure (see col. 10, ll. 1-7); wherein the optical fiber (59c) may inherently conduct an optoelectronic transmission; wherein the optical fibers is adhered to the interfaces (col. 9, ll. 55-57); wherein it is inherent that the adhesive used to adhere the optical fibers may require some time of heat curing (i.e. "baking"); wherein it is inherent that the optical fibers (59c) are capable of providing optoelectronic transmission or reception; wherein the optical fibers (59c) are accepted by V-grooves (58a, 58b); wherein it is inherent that the bending radius of the grooves is less than 2.5 mm (as seen in fig. 10a); wherein it is inherent that the base substrate (57) which connects the input and output interfaces may comprise silicon.

Regarding claim 6, applicant is claiming the product including the process of making the optical waveguide, and therefore are of "product-by-process" nature. The courts have been holding for quite some time that: the determination of the patentability of product-by-process claim is based on the product itself rather than on the process by which the product is made. *In re Thorpe*, 77 F. 2d 695, 227 USPQ 964 (Fed. Cir. 1985);

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and patentability of claim to a product does not rest merely on a difference in the method by which that product is made. Rather, it is the product itself which must be new and unobvious. Applicant has chosen to claim the invention in the product form. Thus a prior art product which possesses the claimed product characteristics can anticipate or render obvious the claim subject matter regardless of the manner in which it is fabricated. A rejection based on 35 U.S.C. section 102 or alternatively on 35 U.S.C. section 103 of the status is eminently appropriate and acceptable. *In re Brown and Saffer*, 173 USPTQ 685 and 688; *In re Pilkington*, 162 USPQ 147.

As such no weight is given to the process steps recited in claim 6.

Regarding claims 12-15, 22, and 29-31, the disclosure of Ota inherently comprises a method encompassing all the steps of claims 12-15, 22, and 29-31. See the previous remarks concerning claims 1-5 and 7-10.

**9. Claims 12 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent no. 5,854,868 to Yoshimura et al. (hereinafter "Yoshimura"), provided by applicant.**

Yoshimura teaches a method of forming an apparatus, comprising:  
Providing an input and output interface (i.e., lower and upper buffer layers), see Fig. 1B, disposing at least one bent waveguide between the upper and lower buffer layers (see fig. 1A); adapting said at least one bent waveguide to provide an optical path; and inherently adapting said bent waveguide to avoid premature mechanical failure

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**12. Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota as applied to claims 1 and 15 respectively.**

Note the substrate (57) of Ota may be considered a "base element" as recited by claims 11 and 20. Thus, Ota only differs from claims 11 and 20 in that he does not disclose a "cover element" which combines with the base element. However, it is well known in the art to provide covering means for optical fibers disposed in V-grooves. The ordinary skilled artisan would have wanted to modify Ota to provide a cover in order to protect the fragile optical fibers. Thus, no patentable weight is given to claims 11 and 20.

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**13. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota as applied to claim 20 above.**

As noted with respect to claim 20, providing a cover element to protect or "buffer" the optical fibers of Ota would have been obvious to one of ordinary skill in the art at the time of the claimed invention. Furthermore, it is the position of this examiner that fabricating both the cover and base elements from silicon would have been obvious design choice since silicon is a well known material used in optical device manufacturing in general. It is also the position of this examiner that using SiO<sub>2</sub> sintering to attach the cover and base elements would have also been obvious to the ordinary skilled artisan since SiO<sub>2</sub> sintering is well known for attaching optical elements in general.

**14. Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura as applied to claim 22 above.**

Regarding claims 23-28, Yoshimura further teaches etching at least one waveguide (col. 2, ll. 49-51); providing a silicon wafer (col. 2, ll. 33-34); depositing an etch-masking layer/core layer; providing a photoresist layer; and producing a replica of a desired geometry for the at least one waveguide (see col. 2, ll. 35-50).

Thus, Yoshimura differs from claims 23-28 in that there is not expressly disclosed providing a glass sheet which is adhered to the substrate and used to etch out at least one waveguide with the aid of the patterned etch-masking layer.

However, the method of Yoshimura must provide some type of glass layer/sheet in order to form the waveguides. Although the method of Yoshimura is related to a film-

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forming method, it is the position of this examiner that providing a ready-made glass sheet in order to etch the waveguides and adhering it to the substrate would have an obvious modification of Yoshimura. The techniques of glass photolithography to make optical waveguides are well known in the art. Thus, using glass photolithography to make the optical waveguides of Yoshimura instead of a filming method would have been an obvious design modification of Yoshimura. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to modify Yoshimura to obtain the invention specified by claims 23-28.

***Allowable Subject Matter***

15. Claims 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose or suggest, alone or in combinations, a method of forming an optical apparatus comprising all the recited steps of claims 12 and 15 and further comprising a baking step as specified by claims 16-19.

***Conclusion***

17. Since the Yoshimura and Ota references were provided by the applicant, no copies thereof are being provided with this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (703) 305-8528



and whose e-mail address is [omar.rojas@uspto.gov](mailto:omar.rojas@uspto.gov). The examiner can normally be reached on Monday-Friday (7:00AM-3:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 for regular communications. The examiner's personal work fax number is (703) 746-4751.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Omar Rojas  
Patent Examiner  
Art Unit 2874

or  
March 11, 2002



HEMANG SANGHAVI  
PATENT EXAMINER